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ABSTRACT

A study examined the usefulness of one major strategy for helping teachers, administrators, and resource staff use research on bilingual instruction. The strategy studied was the Multi-District Trainer of Trainers Institute (MTTI) as implemented in California. The study's objectives were to: describe the MTTI design, content, delivery, and organizational arrangements; describe the impact the MTTI has had on participants, facilitators, and researchers; and analyze the MTTI as a research utilization process using a model from the research utilization literature. The MTTI (1) is an effective research utilization strategy when research must be adapted for practice in a conflicted educational environment, illustrating how the rationalist and conflict-oriented research utilization views can be merged effectively; (2) demonstrates the importance of sustained training; (3) can help to implement research-based instructional strategies; and (4) can enhance and redirect research efforts. (MSE)

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APPLYING RESEARCH ON EFFECTIVE BILINGUAL INSTRUCTION IN A MULTI-DISTRICT INSERVICE TEACHER TRAINING PROGRAM

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A paper presented in the symposium on research utilization strategies for teachers and teacher educators at the Annual Meeting of the American Educational Research Association in Washington, D.C., April, 1987.

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Overview

Over the last decade, the research base supporting bilingual instruction has improved considerably despite barriers such as low funding and a charged political/emotional consideration of bilingual education (Wong Fillmore, 1985). While more research is needed on many aspects of bilingual instruction, an equally pressing need is to improve the ways existing research is utilized in elementary and secondary school classrooms.

Helping teachers apply the existing research on bilingual instruction is itself an intriguing and important problem. Over the last five years, the application of this research has been a difficult process for several reasons. First, the research findings have continued to evolve so that the research provided not so much final answers as emerging guiding principles for bilingual instruction. Second, given the different program purposes, program needs and local contexts, the guiding instructional principles had to be adapted to fit widely varying local circumstances. In short, a universally-suitable packaged instructional program based on the research was not sensible, feasible or effective.

Moreover, there were typical and sizable implementation problems. Many district and site administrators, and many teachers, were not informed or determined advocates of these instructional principles. In some settings, administrators and some teachers were even active resistors to bilingual programs or sought merely to comply with the basic legal requirements. The

funding and bureaucratic confusion surrounding bilingual education often compounded the implementation problems.

Other teachers were committed to bilingual education in general, but found more communication-based instructional strategies difficult to understand or master. Even for many of these teachers, the new instructional strategies required a paradigm shift, a major conceptual shift in their approach to instruction, as well as a shift in specific teaching skills. It was clear that quick-fix solutions to the utilization of research problem would not work even for committed teachers.

Finally, many local settings had pools of potential fiscal, human and organizational resources which could be drawn on to facilitate the utilization of the research. But the size and configuration of these potential resources varied greatly among local sites. Overall, the problem was to launch an effective process for utilizing the research on bilingual instruction within the set of constraints-- both positive and negative-- described above.

Purpose of the Study

The purpose of the study was to describe and analyze a major strategy for helping teachers, administrators and resource staff in local settings to utilize the emerging research on bilingual instruction. This major strategy, the Multi-district Trainer of Trainers Institute (MTTI) has been widely implemented in California and across the nation as well as in several foreign countries since 1980. More specifically, the objectives of the

study were:

1. To describe the MTTI itself in terms of design principles, content, delivery strategies and organizational arrangements,

2. To describe the impact which the MTTI has had on participants, facilitators and researchers, and

3. To analyze the MTTI as a research utilization process using a model from the research utilization literature.

Methodology

A multi-method procedure was used to collect data about the MTTI's as described by Calderon (1986). Questionnaires were administered to 621 MTTI participants throughout California; a 74% return rate was achieved. Formal and informal interviews were also conducted with each trainer and 40 participants throughout the state. These questionnaires and interview addressed the content and process of the workshops as well as the extent of implementation of the training.

In addition, training sessions in 5 counties were observed and documented in the form of field notes and observer logs. Classroom observations, coaching logs and checklists were collected from 100 participant/peer coaches for the year following the MTTI training. Interviews were also conducted with researchers who presented at various MTTI sessions over 4 years time, and with the originators of the MTTI program.

Quantitative data from the questionnaires were tabulated as descriptive findings. Qualitative data from the other instruments were content analyzed and combined around themes. Findings in the study were based on the triangulation of data

from the questionnaires, interviews, observation guides, and participant logs.

Findings

The Nature of MTTI. The first purpose of the study was to describe the MTTI itself in terms of design principles, content, delivery strategies and organizational arrangements. MTTI was founded on 3 premises. First, high quality staff development is the central component of any effort for improving education. Such quality staff development programs differ from one-shot workshops and recognize that change is a gradual and difficult process for teachers. Learning to be proficient in another language or in new teaching methods requires both time and effort. The requirements of extra energy and time adds to the teachers` workload, even when release time is provided.

Furthermore, change brings anxiety and can be very threatening. Change means taking risks, feeling uncomfortable, and going through an adjustment period when students might learn less well than they do under the current teacher`s practices. Teachers will intuitively tend to go back to the old way of doing things, even though they know that these were not the best ways. Therefore, a quality staff development program will structure the new learnings incrementally in small chunks, over an extended period of time with built-in mechanisms for teacher moral support and confidence building. The training must also recognize that a program cannot be implemented uniformly. Teaching and learning are influenced by a multitude of situational and contextual

variables, particularly with LEP programs. Teachers' concerns must be addressed as they relate to personal and contextual needs (Guskey, 1986; Fullan, 1982; Hall & Loucks, 1977; McLaughlin & Marsh, 1978; Joyce & Showers, 1980).

Second, MTTI is also built on the premise that teachers need continued feedback and support at the school site between training sessions in order to ensure implementation of the new learnings. Teachers need on-going guidance, adaptation techniques, and room for experimentation. This translates into administrative support and release time for teachers who want to observe their colleagues, get feedback and reassurance from their peer-coaches about their new teaching and their students' learning patterns.

Teachers go through three phases: initial experimentation, focusing inwardly at their own teaching behaviors as they try to adhere faithfully to the teaching model. Next, once the pieces of the teaching model have become almost "mechanical", they then turn to focus on student behaviors, responses, adjusting and fitting the teaching model to the students' needs. Finally, the teaching behaviors become an integral part of the teachers active teaching repertoire, student active participation and curriculum materials (Joyce & Showers, 1982; Sparks, 1983; Calderon, 1984). More important, students also learn the teaching/learning behaviors and their performance begins to improve.

Third, quality staff development needs to provide teachers with what Joyce and Showers (1980) call the five major components

of training:

1. The study of the theoretical basis or the rationale of teaching methods;

2. The observation of demonstrations by persons who are relatively expert in the model;

3. Practice and feedback in protected conditions;

4. Coaching one another at the school to ensure continuous development and use of a new skill.

After a careful analysis of staff development practices throughout the United States, Joyce and Showers (1980) found that the degree of skill developed and the use of that skill in the classroom was contingent on the type(s) of training provided, as is portrayed in Table 1.

Table 1

The Joyce and Showers Illustration of Transfer of Training

Type of Training Provided	Degree of Skill Developed	Accurate Use In The Classroom	Effect Size
Theory	5 %	0-5 %	.01
Theory & Modeling	50 %	5 %	.03
Theory, Modeling, Practice & Feedback	90 %	5 %	.39
Theory, Modeling, Practice, Feedback, & Coaching	90 %	75-90 %	1.68

Interpreted to fit bilingual education training programs this model requires providing theories and rationale for such issues as Why bilingual education? Why these particular teaching

models? It also means providing at least 20 different demonstrations of a particular teaching model, in different contexts, for different settings. Integrated with theory and modeling, enough time for practice of the new model, in the training environment needs to be provided. During these practice periods at the training sessions, feedback mechanisms need to be introduced and practiced. The "art" of coaching is also introduced and practiced and organized before leaving each training session. In the meantime, administrators are participating in the theory sessions, observing the teachers at the training workshops, and participating in their own clinical supervision strand in order to appropriately supervise and evaluate ESL and bilingual teachers. (Calderon, 1984; Showers, 1985; Joyce, Hersh & McKibbin, 1983; Brandt, 1987; Garmston, 1987).

The mission of MTTI is to provide a staff development program designed to assist school districts in meeting the needs of limited English proficient students. There are currently four strands:

1. MTTI for administrators focuses on program design, compliance issues, staff supervision systems, activities management, monitoring of school effectiveness, and implementation of change dealing with instructional programs for language minority students.

2. MTTI for trainers of trainers consists of an extensive program in which participants achieve competence in fist and second language research, theory, practice, as well as legal and curricular requirements. Trainers gain the expertise necessary to train others on selected teaching strategies, on observation/feedback/coaching techniques, and implementation of comprehensive staff development programs.

3. MTTI for teachers involves effective teaching strategies for first and second language development, reading, writing, content areas through sheltered English, models for teaching critical thinking and cooperative learning models. Models are sequenced according to LEP students' level of English proficiency.

4. MTTI for parents develops a cadre of parents as trainers of other parents focusing on participation in their children's education at home and at school.

The typical MTTI is a three-year program that requires from 12 to 15 training days a year. These are usually sequenced into 2 full-day sessions every 4 to 6 weeks with a summer session of 3 to 5 days. Between sessions, participants are scheduled to do peer observations and coaching. Figure 1 portrays the three-year program.

There is a typical content for each of the cycles portrayed in Figure 1. For example, Cycle I usually begins with First and Second Language Acquisition Theories and Practices. Cycle II is typically Cooperative Learning and Teaching Content through Sheltered English. Cycle III is either Primary Language Teaching Strategies, or Reading in L1 and L2, or models for Higher Order Thinking Skills. This content is derived from an empirically-based theoretical framework for bilingual education as synthesized in a collection of papers entitled, "Schooling and Language Minority Students: A Theoretical Framework." (Calif. State Dept., 1981), and more recently, Beyond Language: Social & Cultural Factors in Schooling Language Minority Students (Calif. State Dept., 1986). The content of the training was augmented by the knowledge which prestigious researchers, including Cummins, Krashen and Terrell, brought to their presentations.

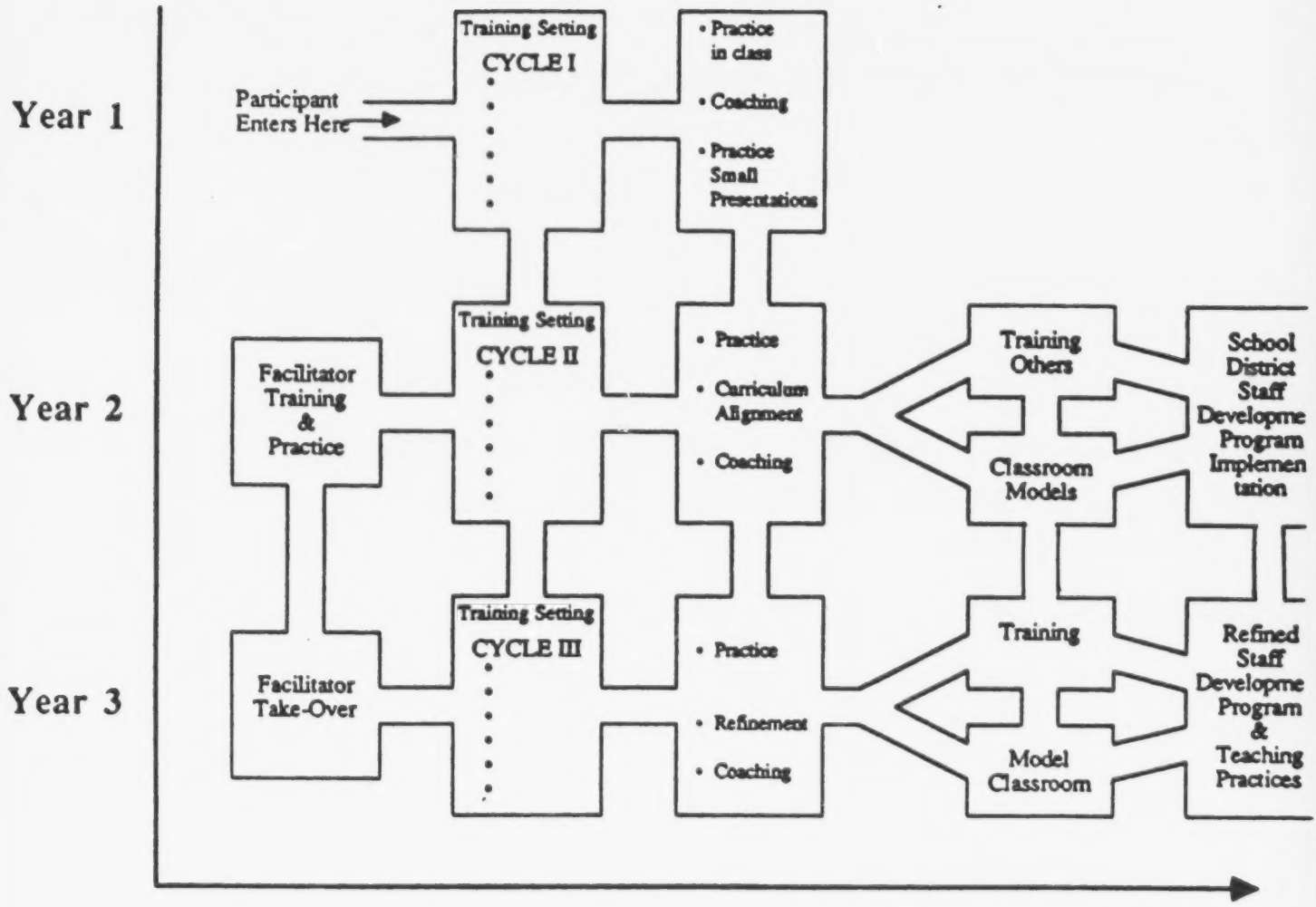

Figure 1

Three Year Capacity Building Cycles

For the MTTI

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Content of the training has been carefully integrated with training process. For example, teachers in the second language acquisition cycle are first exposed to themes as presented by prestigious researchers followed by time spent in processing that information, identifying program application and practicing presenting it to different audiences. From day one participants are introduced to principles of effective staff development and coaching. Presentations on these two topics are also practiced.

Sessions on teaching methods concentrate on a part of a teaching method at a time. For instance, the Natural Approach to Second Language Acquisition (Terrell, 1981) is presented by modeling only the Preproduction stage the first day. The second day is spent on practicing this stage with materials and lessons appropriated to the different grade levels. Time is spent on modeling coaching strategies for that stage. Checklists and other observation and feedback tools are introduced that focus on teacher and student behaviors. Communication skills are introduced to facilitate the peer coaching process. Specific homework is assigned for classroom practice and coaching logs are distributed. These completed assignments are due at the next training session where they are collected and analyzed.

After repeated similar cycles with other teaching methods, the participants end the year with a three day workshop on workshops (WOW) where they pull everything together, schedule their presentations and training with their administrators for the following school year, and do a needs analysis for their own

second year training scope in MTTI.

The expected outcome after the three years is district capacity building as well as a cadre of trained individuals. Capacity is structured by planned institutionalization of the training innovation and development of a cadre of well-prepared trainers and staff development facilitators who can replicate the training and curriculum programs district-wide. At the county level, a facilitator is also trained and prepared to take over the management and continuation of the MTTI cycles after the end of the initial three years. At that point, the County Offices of Education become the sponsors and managers of the multidistrict training base on the MTTI model.

The Impact of MTTI. The second purpose of the study was to describe the impact of MTTI on teachers, administrators, facilitators and researchers who have participated in MTTI. This impact will be described in terms of: a) participant perceptions of the benefits and shortcomings of MTTI, b) impact of the program on teachers in their classroom role, on teachers as resources for other teachers, on the institutionalization of the MTTI training process, and on the institutionalization of the MTTI training process, and in the institutionalization of instructional changes in the classroom, and c) impact of MTTI on researchers who have participated in the MTTI program.

Teachers and administrators provided perceptions about benefits which they derived from MTTI and areas where MTTI needed improvement. The highest ranking benefits that teachers claimed

they derived from the training were teaching strategies, materials, and overall instructional improvement for their LEP students. Next, they cited "training skills" to "help other teachers learn effective teaching strategies." The third ranking benefit for trainees was "a more positive climate" a "network" an "ecology for growth" a "buddy system." The fourth ranking benefit was "administrative support" and "better acceptance of the bilingual program at the school." The fifth was "leadership development" and "personal growth."

For areas of improvement "administrative support for coaching" ranked highest. Next, came "administrative knowledge of bilingual instruction supervisory skills." Third priority was "more training on other models." Fourth ranking priority was to have "all other teachers the my school go through the same training." The fifth priority was "better published/printed materials."

Administrator perceptions were summarized and ranked as follows in terms of benefits derived from MTTI: a cadre of well prepared ESL, bilingual and Sheltered English teachers and trainers, a systematic instructional program, better materials, enthusiastic teachers, and on-going staff development program for all teachers, aides, etc. The most common concerns that principals and central administrators had in trying to implement this type of training were: money for substitutes, how to schedule coaching, time for staff development, having trainees train others as soon as possible, and how coaching fits in with

clinical supervision, teacher evaluation or essential elements of instruction.

Analysis of the interviews, observation and coaching logs, and the questionnaires reveals the nature and extent of impact which MTTI has had on: a) teachers in their role as classroom instructors, b) teachers as trainers of other teachers, c) institutionalization of the MTTI in local settings, and d) institutionalization of instructional changes in school settings. The findings, derived mostly from the qualitative data, suggest a substantial impact for the MTTI.

MTTI has had a considerable impact on bilingual instruction in participants' classrooms. This impact has been greater for cooperative learning and ESL strategies than it has for primary instructional strategies for several reasons. MTTI has not been able to overcome the inadequate language facility which some teachers have. Moreover, bilingual instruction involves integration of curriculum materials, instructional strategies and student assessment results in a sophisticated way-- the innovation is more challenging than are the cooperative learning and ESL strategies. Finally, primary instruction has less administrative support making the implementation process more difficult.

The timeframe for implementation has been at least three years for most teachers. While teachers have been able to implement parts of the instructional program and achieve a degree of "rough and ready" utilization during the first year, it has

taken several cycles of training and coaching to have teachers achieve routine or refinement usage as defined by Hall and Loucks (1977).

Moreover, the implementation phase was characterized by unusually strong swings in teacher morale, skill and actual use of the instructional strategies. Calderon (1984) describes these peaks and valleys for MTTI teachers. In one typical case, the teacher made only modest gains in implementation during the first year but more substantial gains during the second year and outstanding gains in the third year. This teacher also had considerable drops in morale, skill and actual utilization several months after the initial training. The qualitative data indicate the critical role which coaching, recycling through the training and team support played in the implementation of these instructional strategies.

Many teachers were also able to become useful resources to other teachers as they implemented these instructional skills. The strategy of using participants as peer coaches paid big dividends in helping teachers become useful resources to other teachers. At the MTTI sessions, teachers were asked to make presentations, demonstrate strategies during the practice sessions, and provide feedback to other teachers, as well as serve as peer coaches following the sessions. Building on this base, teachers then made informal "awareness level" presentations to other teachers or became "co-trainers" in subsequent staff development sessions. It was surprising to see the large number

of MTTI participants who were able to become trainers after one, two or three years.

Many MTTI Institutes have been institutionalized in their local settings. Early collaborative efforts involving intermediate agencies like county offices and soft-money bilingual assistance centers were critical to the establishment, as well as the institutionalization of the MTTI's. Continued staffing and funding have be accomplished but with several viable patterns of support. For the most part, school districts now provide the funds on a cost-per-participant basis and continue the local MTTI without federal financial support. New MTTI's in 5 counties are coordinated through county offices of education but are primarily funded (95%) by school districts. The MTTI was discontinued in a large urban district where administrative turnover and delay made it difficult to establish long-range systematic activities.

Finally, the extent of institutionalization of instructional strategies in schools has been surprisingly good given the low initial level of administrator support or involvement by districts per se. Districts have been obligated to provide bilingual instruction but were often paralyzed in developing these programs. MTTI graduates could demonstrate bilingual instructional strategies and were capable of helping other teachers in the district. Districtwide or schoolwide adoption came about because district leaders were persuaded by tangible, demonstrated programs, and were involved in the administrative

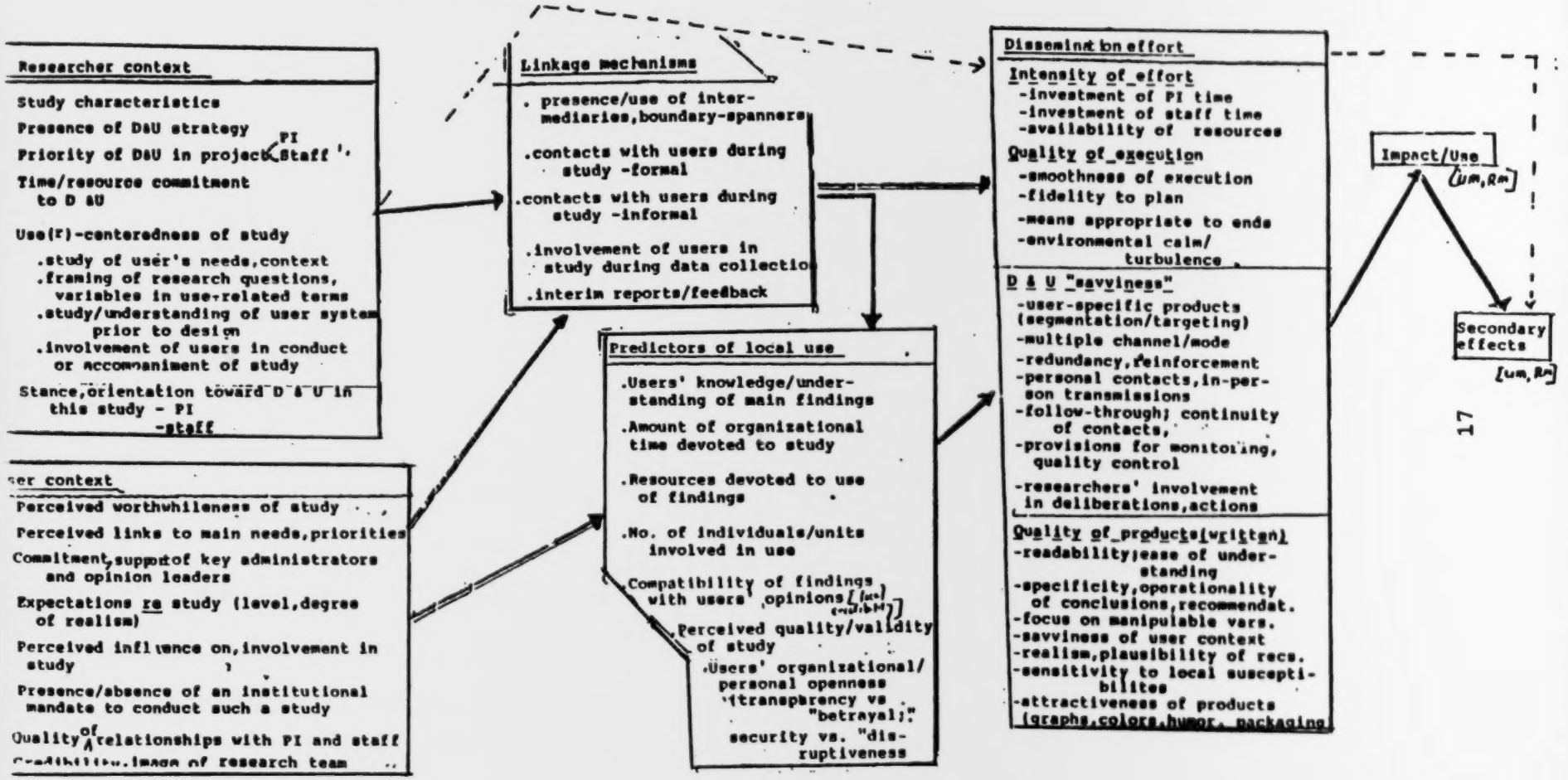
strand of the MTTI. Once administrators were able to see results with the first year participants, they typically sent new waves of participants in subsequent years.

The MTTI also had a substantial impact on participating researchers. MTTI helped individual researchers integrate their ideas with those of others and link theory and practice. In this process, researchers saw the practical application of their guiding principles but also had to struggle collaboratively with teachers to adapt general ideas to the myriad of specific teaching situations. At first, researchers often could only explain and give pre-developed examples of their ideas. Through MTTI they came to provide multiple demonstrations and propose numerous practical implications as well.

This interactive process also lead to the evolution of new theoretical and research directions for the researchers and to the disdain of one-shot workshops they were being asked to provide by other districts. Finally, the MTTI helped researchers see that their efforts were making a significant impact in the classroom, and in several cases led to shift in values and political orientation towards more support of bilingual education.

<u>MTTI As A Research Utilization Strategy</u>. MTTI can also be seen as a research utilization strategy. Huberman (1986) has synthesized the literature on research utilization as a set of key variables in a schematic as presented in Figure 2. This schematic and his distinction between the "rationalist" vs. the

Figure 2 DISSEMINATION EFFORT MODEL


Researcher context
Study characteristics
Presence of D&U strategy
Priority of D&U in project (PI, Staff)
Time/resource commitment to D&U
Use(r)-centeredness of study
.study of user's needs, context
.framing of research questions, variables in use-related terms
.study/understanding of user system prior to design
.involvement of users in conduct or accompaniment of study
Stance, orientation toward D & U in this study - PI
-staff
ser context
Perceived worthwhileness of study
Perceived links to main needs, priorities
Commitment, support of key administrators and opinion leaders
Expectations re study (level, degree of realism)
Perceived influence on, involvement in study
Presence/absence of an institutional mandate to conduct such a study
Quality of relationships with PI and staff
Linkage mechanisms
. presence/use of intermediaries, boundary-spanners
.contacts with users during study -formal
.contacts with users during study -informal
.involvement of users in study during data collectio
.interim reports/feedback
Predictors of local use
.Users' knowledge/understanding of main findings
.Amount of organizational time devoted to study
.Resources devoted to use of findings
.No. of individuals/units involved in use
.Compatibility of findings with users' opinions
Perceived quality/validity of study
.Users' organizational/personal openness (transparency vs "betrayal;" security vs. "disruptiveness
Dissemination effort
Intensity of effort
-investment of PI time
-investment of staff time
-availability of resources
Quality of execution
-smoothness of execution
-fidelity to plan
-means appropriate to ends
-environmental calm/turbulence
D & U "savviness"
-user-specific products (segmentation/targeting)
-multiple channel/mode
-redundancy, reinforcement
-personal contacts, in-person transmissions
-follow-through; continuity of contacts,
-provisions for monitoring, quality control
-researchers' involvement in deliberations, actions
Quality of products (written)
-readability; ease of understanding
-specificity, operationality of conclusions, recommendat.
-focus on manipulable vars.
-savviness of user context
-realism, plausibility of recs.
-sensitivity to local susceptibilites
-attractiveness of products (graphs, colors, humor, packaging
Impact/Use
Secondary effects

Source: Huberman (1986)

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"conflict" view of research utilization help clarify the way that MTTI has operated and offer a perspective on why MTTI has been successful.

Huberman proposes that case examples of research utilization often are a combination of the rationalist and the conflict views. This certainly true of the MTTI situation. In the rationalist view of research utilization, MTTI works for several reasons. Committed teachers who were participants in MTTI made both conceptual and instrumental use of the research on bilingual instruction. Utilization by these teachers was a combination of: a) participants finding the research to be scientifically valid, translatable into conception or action and meeting local needs, and b) where there was uncertainty about the implications of the research or where the research wasn't definitive, increasing the interaction between knowledge-producers and knowledge-users, adapting the "product", and increasing mutual commitment on both sides. This pattern follows the rationalist pattern described by Huberman (1986, p. 3).

MTTI manifests many of the more specific variables found to enhance research utilization (Huberman, 1986; Love, 1985) although the factors were configured in special ways. While the prestigious researchers had an institutional base in a research center, their relationship with MTTI was as individuals. There were intrinsic and extrinsic incentives supporting their involvement and they had a real interest in helping see their ideas implemented in practice. Researchers and practitioners

also engaged in a two-way relationship in the research utilization as proposed by Tom (1985); the impact of this interaction on researchers is described above.

A major reason for success was the extensive role played by MTTI facilitators who brokered what knowledge was to be utilized, how the utilization was to occur and the institutional arrangements for the MTTI. The facilitators had credibility, and an on-going personal relationship with both the researchers and practitioners. At the same time, facilitators were firm in: a) insisting that researchers help translate research into training, and b) insisting that participants agree to tough rules about workshop attendance and follow-up practice and coaching. The facilitators also arranged an intensity of effort, practiced dissemination saviness and evolved "user friendly" instructional strategies for participants in keeping with the Huberman (1986) conceptual framework presented in Figure 2.

Facilitators were able to establish contact with multiple roles within the user organization; contact with gatekeepers and practitioners, contact with extensive and limited commitment to bilingual instruction and this body of research. Viewed from the conflict view of research utilization, the facilitators tried to managed the level of conflict between the research and the school system. For example, facilitators controlled when certain role groups became involved and adjusted/paced the cycles of training to take advantage of district opportunities.

Another major factor in the success of MTTI was the concept

of safe turf for the MTTI workshops. The geographic and political location of the workshops was often "halfway inside/halfway outside" the district. Committed teachers could engage in the MTTI agenda without major interference from less committed gatekeepers or peers. In many cases, the workshops took place in regional centers away from the teacher's district and involved participants from many districts so that no one district dominated. Multiple source funding also helped dilute the power of any one district in setting the MTTI agenda. The safe turf allowed for exploration of the normative as well as instrumental value of the research as described by Tom (1985).

At the same time, there was: a) district involvement in the general planning of the MTTI's b) participation by teams of participants from a district, and c) follow-up of the workshops in the participant's classroom, and d) cost sharing of training expenses. MTTI was "halfway inside" the district as well.

Perhaps most importantly, MTTI used a sophisticated training strategy to get the research utilized-- a strategy that included both rationalist and conflict views of research utilization. The training provided the conceptual framework for translating the research into practice. It emphasized theory presentation, extensive modelling of the idea for varying teaching situations, engaged participants in active practice and feedback, and required participants to engage in extensive follow-up supported by peer coaching. It also provided for continued recycling of training strands and themes. As new valid pieces of research

emerged, they were tested and adopted or dropped by MTTI.

Sustained contacted allowed participants to recycle through a focused content theme and attain increasing levels of understanding as well as skill over time. For the paradigm shift required of teachers, this sustained skill-oriented contact was critical for utilization of the research. Sustained contact also facilitated the paradigm shift by helping teachers integrate instructional strategies with curriculum and other dimensions of schooling as described by Duffy and Roehler (1986). Finally, MTTI was able to provide both "at least some rapid payoff" (Huberman, 1985) but also skill mastery attained only over a long period of time.

From the conflict view of research utilization, the involvement of prestigious researchers and state department officials symbolized the legitimacy of the research and the MTTI. Participants were able to gain understanding and skill in the safe turf of the training; they also developed a team spirit that carried individuals over periods of frustration and low morale. The training developed a cadre of trained teachers who were trained and socialized into the practice of helping other teachers.

In turn, it is important to see what MTTI did not or was not able to do to get the instructional strategies implemented. The bilingual instructional strategies did not evolve from a district vision of effective programs (Huberman and Miles, 1984). The change had few senior district advocates who saw that these

instructional strategies fit within the district nor was it orchestrated top-down or collaboratively by the district itself. The change rarely had the benefit of district pressure or line administrator support for implementation, nor was institutionalization by the district a happy prospect for district leaders at least in the early years of MTTI. Districts that have continued with MTTI for 5 or 6 years have had better results with top-down implementation and administrator support. Moreover, newly formed MTTI's are having quicker and better results in obtaining senior administrator commitment.

Implications

MTTI represents an effective research utilization strategy when research must be adapted for practice in an conflicted educational environment. For scholars who study the research utilization process and linking agents who seek to facilitate this process, the MTTI model illustrates how the rationalist and conflict-orientated research utilization views can be merged effectively. As other examples of such merged strategies are studied, scholars may be able to offer better generic advice about how to orchestrate the blending of rationalist and conflict views of utilization. MTTI also helps demonstrate the importance of sustained training as a utilization strategy and gets the discussion of strategy beyond the sociological view that sustained contact between researcher and user is sufficient.

For teacher educators, the MTTI model illustrates that paradigm shifts for teachers are possible when the special

conditions described above are included. Yet, there are few examples in the staff development literature where such a sustained staff development effort has been carried out. The MTTI model raises serious questions about whether educational reform that requires major new teaching strategies can be obtained without long-term intensive facilitation efforts. The MTTI model also illustrates what teacher education features are needed to create and sustain substantial this long-term change in teachers, even as new research is being created and disseminated.

Finally, the MTTI model has implications for two closely related issues: the continued evolution of bilingual education research and its implementation in school settings. Research-based instructional strategies can be effectively implemented in schools if an intense and long-term research utilization process like the MTTI is undertaken. At the same time, a process like MTTI must continue to redirect and enhance research on bilingual education. For research that must be adapted rather than adopted for use in classrooms, such an interactive model of research utilization and research redirection is critically important.

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